

Понятие существа и качества в древнеиндийской
грамматике

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Статья дает обозрение трактовок понятий существа и качества в древнеиндийской теоретической грамматике и об их связи с философской системой *Vaisesika*. На конкретных примерах, сопоставляя сделанные из них обобщения, автор рассматривает следующие вопросы: взгляды Бхартрихари (*Vākyapadiya*) о приоритете предложения по отношению слова; понятие *ekāsēṣa* в каноне Панини; толкования комментаторов Хелараджи (*Helarāja*), Катьяны (*Kātyāna*) и Нагеши (*Nāgasa*) концепции качества; определения Патаньджали (*Patāñjali*) (*Mahābhāṣya*) существа и их связь с учением *Vaisesika*; два противоположных аспекта смысла слова (конкретность /партикуляритет/ и обобщение, уникальность /индивидуальность/ и универсальность), что соответственно подчеркивают Вьяди (*Vyādi*) и Ваджапъанана (*Vājapuāpana*). Отмечается, что имеется известная параллель между системой школы Вьяди и логикой Фреге, различающая понятия *Bedeutung* (значение) и *Sinn* (смысл). Тогда как классические определения *Vaisesika* представляют собой строгие онтологические категории, то трактовка *Vyādi* относится скорее к области практической лингвистики и имеет более популярный, гибкий характер.

THE STRUCTURE OF A SANSKRIT PHONETIC
TREATISE

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This paper presents a discussion of the structure and contents of the Apisāliśikṣā, a Sanskrit treatise on phonetics of fairly great antiquity. The method in which the phonetic data are presented, as well as the structural relation of this work to the morphological treatises of ancient Hindu grammar define the scope of our investigation.

Numerous works on Sanskrit phonetics have been preserved. A few of them are complete, self-contained treatises¹, but most deal only with a small part of phonetics², or form part of larger works, such as treatises on sandhi³, dramaturgy⁴, or religious history, the Purāṇas⁵. Their Sanskrit name collectively is Śikṣā 'instruction', and originally they were intended to aid in the preservation of the proper pronunciation of the Vedic texts, to save it from corruption. The principle interest of modern scholars in Indian phonetics has been threefold: At first it was studied as a model of phonetic description when articulatory phonetics in the West was in its infancy. It is wellknown that early Western phoneticians, such as Henry Sweet, were influenced in the formulation of their statements on articulatory phonetics by these Śikṣā's⁶. In the second place, much attention has been devoted to the content of the phonetic statements, to discover the exact pronunciation of Sanskrit sounds⁷. In the third place, the treatises were studied from a text-historical point of view, to assess their relative priority and arrive at some notion about the historical development of grammatical thinking in early India⁸.

The aim of this paper is different again. Assuming that Sanskrit grammar was an attempt to give a complete description of the language, I shall examine the relationship

between this phonetic treatise and the grammatical (i.e. semantical-syntactical-morphological) work of the grammarian Pāṇini. Phonetics proper is not a part of the Pāṇinean treatise and so has to be described separately. It is our contention that the Āpiśali-śikṣā, or one very much like it, fulfilled this function as a phonetic complement to the grammar in the formative stages of Indian linguistic theory⁹.

The Āpiśali-śikṣā, or "Phonetic treatise of Āpiśali", may well be very old. About the supposed author next to nothing is known. If the agreement in wording with the Mahābhāṣya¹⁰ of Patañjali (second century B.C.?) are quotations from our treatise, it would have to antedate the Great Commentary by a considerable number of years to have established its reputation of an authority in Patañjali's eyes. It is not likely that Āpiśali culled his statements from the Great Commentary, for why would he then select these few passages and ignore others? To an even greater extent the Āpiśaliśikṣā is quoted in the Nyāsa, an eighth century commentary on the Kaśikā, in turn a commentary on Pāṇini. At one place, the Nyāsa identifies the source of a quoted passage with the phrase: iti śikṣā 'this is from a śikṣā'. At any event, there is nothing in the subject matter and content of the Śikṣā which would contradict its position as a phonetic treatise within the Pāṇinean grammatical tradition, at least until the advent of the Prakriyā literature (12th century).

The Āpiśali-śikṣā¹¹ is organized in eight brief chapters, each treating of a certain aspect of the production of speech sounds. In the main, the first seven chapters give definitions whereas the final one describes the speech process as a unified whole. Its contents can be summarized as follows:

By way of introduction, nāda- 'noise', here translated as 'tone', perhaps "pre-articulated sound" is defined. It is that which starting from ether-wind rises up from the body and reaches the mouth. The origin in ether and wind may

be an attempt on the part of the author to account for both the acoustical aspects and the air flow of speech, since at least in one philosophical system hearing and the ear are associated with ether, and body breath is commonly equated with the macro-element wind¹². Next the word sabda- '(articulated) sound' is defined as that which reaches the condition of being a varna- 'phoneme' while being distributed over the various points of articulation. The articulated syllable is identified with brahman- 'god', in line with the early Hindu theory which views meaningful articulation as a manifestation of the deity.

Next, the process of articulation is explained in terms of three features which are translated here as: 'point of articulation' (sthāna- 'place'), 'organ of articulation' (karana- 'instrument'), and 'mode of articulation' (prayatna- 'effort'). An air impulse from the region of the navel is responsible for the modal variations. It is divided into two at some point (the velic?) and strikes against the points of articulation either in the pre-buccal tract, the nose or the mouth. From these various modes, points and organs of articulation, sixty-three phonemes are produced which are not listed in the treatise itself but which will be listed presently.

From here on, Apiśali sets out to describe the phonemes. The only phonemes of importance to him, of course, are those of Sanskrit and the manner in which he refers to them is rather unusual compared to Western phonetics, though common (but not universal!¹³) in Sanskrit phonetics. He has organized the phonemes as members of a two-dimensional set, a structured set with a deliberate ordering. This set allows him to refer to smaller sets and groups of phonemes, as will become clear. The phonemes of the set are going to be associated with articulatory features, one feature at a time. The set used is the following: (See table on next page.)

Table 1

M U T E S

S V

SPIRANTS

First Second Third Fourth Fifth

Varga's	k	kh	g	gh	ñ		h
	c	ch	j	jh	ñ	y	s
t.	th	d	dh	n.	n.	r	s.
t	th	d	dh	n		l	h.
p	ph	b	bh	m		v	h(m.)
Yama's	~k	~kh	~g	~gh			

The last series is constituted by the so-called yama's 'couples', a term translated here as 'transition sound'. Phonetically, they are probably unexploded pre-nasal stops¹⁴. They are accorded the status of independent phoneme in this treatise, although by the terms of our Western definition of phoneme, they ought to be called something else. The vowels are ordered in a linear left-to-right arrangement. The long and extra-long vowels are usually referred to by the short one, that is, vowel i stands for the class i, I and i3, as well as for the nasalized and accentual varieties (see below). Like any other phoneme, a vowel can also be referred to by prefixing it to the word -kāra-, e.g. ikāra- 'an i'. The semivowels and the sounds following them are also ordered in a left-to-right arrangement. But the mutes and transition sounds are ordered in two dimensions, left to right in rows, and up and down in columns. The rows are called varga- 'group', or else are named after the first phoneme followed by an -u, e.g. ku signifies 'the k-row', cu 'the c-row', etc. The columns are given ordinal numbers, first to fifth.

The descriptive procedure followed by Āpiśali is to name an articulatory feature and then list the phonemes in the set which partake of that feature. It is obvious that such a procedure necessitates the repetition of the same phoneme for as many times as there are features which are responsible for its production, but this redundancy is apparently tolerated, and in practice often avoided by clever phraseology. We shall now examine his descriptions.

1. Point of articulation (1.6 - 27). The points of articulation are described as chest, throat, tongue¹⁵ (jhvya-, a term used only in this treatise, perhaps the back of the tongue), palate, top of the palate (mūrdhanya- 'cacuminal', an otherwise obscure term), root of the teeth (dantamūla-, probably the alveolae where the upper teeth are rooted), the teeth, teeth and lips, the corners of the mouth (an alternative place for articulating the y), the lips and the nose. Then follows a list of co-articulated points: throat-nose for the ŋ, root-of-tongue and nose for the transition sounds, throat-palate for e, ɛi, throat-lips for o au.

As an appendix to this chapter, the diphthongs are described as being composed of two phonemes, and \ddot{r} is characterized in terms of an acoustic feature: '(\ddot{r}) has a snarl' (1.26), presumably because no other word describes the trill.

2. Organ of articulation (2.1 - 9). The phonemes of the chart are assigned to an organ of articulation, often with the aid of the definitions established in the preceding section. In other words, the ordering of the chapters in the treatise is significant and that which has been taught before is presumed to be known at this stage. The organs of articulation (karana-) are: One, the tongue and of the tongue the root, the central portion, the "almost-tip", the tip and the underside, the latter for the retroflex sounds. Two, for the remaining phonemes (throat, nasal, glottal, labial) the organ of articulation is the same as the place.

3. Mode of articulation (3.1 - 4.10). In the discussion of the modes (prayatna-) of articulation a primary distinction is made between the modes applying to the mouth cavity and those outside it (ābhyanṭara- 'intrabuccal', bāhya- 'extrabuccal').¹⁶ "Mode" is a cover term that describes a number of features that can be translated in various ways.

a) Closure. Four degrees of closure are distinguished which are "contact", or complete closure, "slight contact", or partial closure, "slight aperture" and "complete aperture". They give rise, respectively, to mutes (sparśa-), semivowels (antastha- 'intermediate'), spirants (ūṣman- 'hiss') and vowels (svara-). Among the latter, the aperture is widest with ā, least with i u ṛ l. The statement for ā is samvṛto 'karah (3.11) 'ā is closed'.¹⁷ From here on the modal features are extrabuccal.

b) Unvoicedness. The phonemes of the first and second columns and a number of other specified phonemes are declared to be unvoiced.

This definition is followed by a brief statement about

two features that accompany absence of voice, namely that the glottis (kantha- 'throat') is open, i.e. not constricted and that the articulation is accompanied by śvāsa- 'wheeze', perhaps best translated as 'whisper'. The latter feature is said to be secondary, or non-discriminatory, or redundant.

c) Unaspiration. The term used here is alpaprānata- 'condition of little breath'. The mutes and transition sounds of the first column (3) are given this label, as well as those of the third column, the semivowels (5) and nasals (6). The remainder have "great-breath", aspiration.

d) Voice. The definition of voice (ghosa- 'rumble') parallels that of unvoicedness. The glottis is made tense and as a redundant feature tone (nāda- 'noise') is produced. The voiced phonemes are enumerated: the thirds, fourths, fifths, semivowels, h, and anusvāra (4).

e) Nasalization. The fifths have a quality in addition to those already enumerated (voice, closure), viz. nasality.

f) Spirantization. The quality ūṣman- 'hiss' is given to the sibilants and the varieties of h (8).

The next statements are rather obscure. The unvoiced aspirated stops (dvitīyah) are said to be "with the same sthāna- 'point of articulation'", presumably "as the spirants". The formulation is too brief to be clear. Next the fourth-column phonemes are compared to h. Both categories of course are voiced and aspirated.

In the next section, (5), articulatory sounds are defined in terms of acoustical, non-linguistic features: mutes and transition sounds are produced by the air stream striking like a mass of iron, semivowels like a mass of wood, vowels like a mass of wool.

The vowels which had heretofore been quoted in their simple form only, are now (section 6) declared to occur in eighteen variant forms, as follows:

Table 2

The varieties of one vowel.

	S H O R T		L O N G		E X T R A -	
	not nasa- lized	nasa- lized	not nasa- lized	nasa- lized	not nasa- lized	L O N G
Acute	ú	í	í	í	í ³	í ³
Grave	ù	û	û	û	û ³	û ³
Circum- flex	û	û	û	û	û	û ³

According to these variables, i.e. three degrees of quantity, three accents and presence or absence of nasalization, eighteen varieties of simple vowels are distinguished and twelve varieties of l and the diphthongs. (In the phonemic inventory (p. 4), however, only quantity is used as a criterium and nasalization and accent are not listed separately). Semivowels except r may also be nasalized. This section ends with a definition of savarna—‘homophonic’: members of one row are homophonic¹⁸. By this definition, phonemes articulated at the same point of articulation are homophonic.

So far, Ápiśali’s procedure was to give labels to the phonemes in the phonemic chart. Now the terms sthāna-, karana-, prayatna- are related to reality, respectively as the place where phonemes are perceived, the instrumentality by which they are brought about and the effort by which they are produced. In other words, the preceding abstract classification now is actualized and the student will be able to produce the sounds.

The last section is in many ways the most interesting one, since it describes the formation of the speech sounds in terms of the definitions established earlier. That which originates the speech sounds is the breath, an air stream

which rises upwards until arrested in its free flow by points of articulation and various processes, such as the four degrees of closure (8.1 - 3).

Then closure and aperture are described but not as pertaining to the space left between the organs of articulation within the mouth, but pertaining to the aperture of the gabila- 'throat opening'. It is either open or closed. The air stream once it has struck one of the articulatory organs is reflected (nivrtta-) and strikes the kostha-. This is not a very clear term, being used as a phonetic term here only. Elsewhere, especially in medical literature, it means 'the viscera, abdomen, alimentary canal, thoraco-abdominal cavity (Trivedi p. 271). With the usual lack of standardization of terminology in medical literature (I counted six words for "uvula" in a cursory examination of Trivedi's list) it is no surprise to find that this term leaves us without a definite reference point in the human body, and so the safest translation seems to be "thoracic cavity".

The air stream having been reflected from the kostha- then produces tone when the glottal aperture (kanthabila- 'throat-opening') is closed, constricted, but when it is relaxed, whisper is produced. By some authorities it is called a secondary feature (7 - 12).

Then, if the impact of the air stream on the point of articulation produces resonance (dhvani-) and tone is produced as a secondary feature, then from the combination of tone and resonance voice (ghosa- 'rumble') is produced. When the air stream is strong (mahat-) there is strong aspiration, when it is slight, there is little aspiration, or in our terms, lack of aspiration. From strong aspiration comes spirantization. This statement may be connected with the obscure remark (4.9) equating the voiceless aspirated stops with spirants. Apparently, these stops were not regarded as differing much from spirants (13 - 20).

In the final passage of this chapter, the production of the three accents is described. Apparently, to produce the

acute accent the articulatory process is "sharp", intense, the organ (gatra-) is contracted, the glottal aperture is narrowed, the air passage is sharp and the vowel becomes harsh. That is the description of the acute accent (20), function before the morphology has been taught. It also is clear that the Aṣṭādhyāyī operates with a set of abstract symbols, the morphophonemes, whose identification with speech sounds is to a large extent irrelevant. It is the function of the phonetic treatise to relate these speech symbols to reality, the reality of the human vocal tract. And the Apiśaliśikṣā does just that. Rather than give an independent account of articulatory phonetics, it addresses itself to the phonetic characterization of the grammar's output. It assigns labels to the morphophonemes and then describes how they may be produced. The commentatorial digression at 1.1.9 is designed for little more than to provide the framework for the arrangement of sounds.

To summarize, the conversion of Sanskrit speech symbols to speech sound is accomplished by arranging the symbols in a matrix and assigning articulatory features to groups of or individual symbols within that matrix. The Apiśaliśikṣā lists the following general features of articulation:

1. POINT OF ARTICULATION	2. ORGAN OF ARTICULATION	3. MODE OF ARTICULATION	4. IMPACT
chest	chest	Intrabuccal:	iron
throat	throat	contact	wood
tongue	tongue:	slight contact	wool
palate	root	slight openness	
roof of mouth	center	openness	
root of teeth	underside	closedness	
teeth	tip	Extrabuccal:	
teeth and lips	teeth and lips	aspiration	
corners of mouth	corners of mouth	voice	
lips	lips	nasality	
nose	nose	hiss	

5. PRODUCTION (paraphrased): To produce, for instance, the phoneme ṅ, a mute in fifth column in the k-row, generate an air stream from the stomach. Let it strike against the point of articulation, which is the throat, while it is in contact with the organ of articulation, which is the root of the tongue. Let the air strike like a piece of wood, and let it rebound to the glottis. Hold the glottis tense and let the resonance escape through the nose. Thus the phoneme is produced, or perceived.

Conclusion. In the preceding paragraphs the relationship between the morphological and the phonological sections of the Sanskrit grammatical tradition has been examined. The proposition was put forward that Pāṇini's grammar was structurally closely associated with a phonetic treatise and formed together with it a complete statement of Sanskrit speech events. It was found that the Āpiśalāśikṣā, or a similar treatise, could fulfill this function of a phonetic complement to the grammar adequately, as it does not contradict Pāṇinean statements in any serious way, but rather, often shows similar viewpoints on the classification of sounds. The date of the Āpiśalāśikṣā is early enough to qualify it as an acceptable contemporary treatise.

Finally, it is interesting to observe that in spite of its small size (it can be printed on two pages) the Śikṣā is an adequate formulation of Sanskrit speech sounds. Beyond that, it yields little information on matters such as sentence melody, or intonation. Its task is to teach the pronunciation of the morphophonemes used in the grammar.

FOOTNOTES

1. See Renou 1931 for editions and translations (pp. 96-97). Since that date, the most elaborate translation is Ghoosh 1938 of the Pāṇiniyāśikā. For other editions, see Dandekar 1946, and 1961.
2. See Kielhorn 1876 193 ff and Varma 1929 Introduction for discussions of the restricted scope of many of these treatises, viz. an enumeration of words containing the semivowel v to avoid dialectical confusion with b.
3. In the principle Prātiśākhya's (Rk-, Taittirīya-, Vajasaneyī-, and Caturādhyāyīka-) they are found at the beginning of the treatise, before the sandhi rules.
4. Nātyāśāstra XV 6 - 20.
5. E.g. Agnipurāṇa Chapter 336.
6. See Allen 1953 p. 8. Henry Sweet, an associate of Friedrich Max Müller, himself the translator of the Rk-prātiśākhya, devised the Broad Romic alphabet which formed the basis for the International Phonetic Alphabet.
7. Among them especially Varma 1929 and Allen 1953.
8. See Thieme 1935 with bibliography, Raghu Vīra 1933.
9. This assertion has been made before by Raghu Vīra 1931, who quotes a statement from another source to the effect that Pāṇini had written a phonetic treatise himself (p. 655, quoted from the Piṅgalācārya-śikṣā). I find it difficult to agree with Raghu Vīra when he characterizes the śikṣā as "... a primer for the instruction of children..." (p. 669), and hope to demonstrate that its function is less trivial.
10. A Kārikā to Pāṇini 4.2.45 names Āpiśali as the authority for a rule of derivation. Quotations from our śikṣā are found in the Mahābhāṣya Vol. p. Quotations to the work in later grammatical literature have been traced by Raghu Vīra 1933.

11. It was first described by Kielhorn 1876, published by Raghu Vira 1931 and again 1933. We follow the latter edition without changes. The variant readings are of no great consequence.
12. See the Nyāyakośa under śrotrem, where hearing and nabhas - 'space' are to be associated in the Nyāyasiddhāntamuktāvalli -, not available to me.
13. The Nātyaśāstra l.c., for instance, quotes the individual speech sounds.
14. I use the translation 'phoneme' for varna- with some misgivings, because of the implied associations of the term with Western linguistic theories: if there is a phoneme, one should define its relation to contrastive sounds. Allen 1953 avoids the term (pp. 15-16), but adopts it again in 1962 (p. 11). At any rate, it should be realized that by the terms of the Śikṣā the term 'phoneme' has little meaning other than to refer to a member of the chart containing the inventory of speech sounds. Its phonetic significance appears at the end of the treatise when each phoneme emerges as a bundle or package of relevant articulatory features.
See Whitney 1862 pp. 393 - 394 and 1871 p. 81 for speculations on the phonetic nature of yama's. Also Siddheshvar Varma 1929 p. 79.
15. The term used for "tongue-phonemes" is jihvya- 'belonging to the tongue'. It is found only here to designate a point of articulation at the back of the throat, whereas in the Nātyaśāstra (XV. 10) it seems to mean 'retroflex'.
16. These translations have been given by Allen 1953 p. 54.
17. This "closed" pronunciation of a and its phonetic equivalents would make it a low-back or central-mid vowel. The difference of articulation between it and ā is also reflected in Pāṇini's sūtra 8.4.68.

18. The translation 'homophonic' has been adopted here in order to avoid the term "homophonous", which commonly means that words sound alike. A better translation for savarna- would be 'homotopic', or 'equilocal' to indicate that the sounds share a place in the phonemic inventory (Table 1).

ĀPIŚALI-ŚIKṢĀ

I. [Origin of speech].

1. ākāśavāyuprabhavah śarīrāt samuccaran vaktram upāiti nādah sthānāntaresu pravibhajyamāno varnatvam āgacchati yah śabdah.

'Originating in ether and wind, rising up from the body, tone reaches the mouth. (Articulated) sound is that which being distributed over different places comes to the state of varna-, 'phonemicity'.'

2. tam aksaram brahma param pavitram guhāśayam samyag uśanti viprāḥ sa śreyasā cā 'bhyudayena cāi 'va samyak prayuktah purusam yunakti.

'That syllable, the highest brahman, the purifier, having his abode in secrecy, the sages long for properly. When properly employed, it joins the human being with both prosperity and good result.'

3. sthānam idam, karanam idam, prayatna esa dvidhānilasthānam pīdayati vrttikārah prakrama eso 'tha nābhitalet.

'This is the point of articulation, this is the organ, this the articulatory mode. This process, then, (beginning) from the region of the navel, producing modifications, strikes the point where the wind divides in two [the velic?].'

4. tatra sthānakaranaprayatnebhyo varnāś trisasti.

'In this connection, from the points and organs and modes of articulation, sixty-three phonemes (arise).'

5. tatra varnānam kesām, kim sthānam, kim karanam, prayatnaś ca kah kesām, ity ucyate.

'In that connection: "Of which phonemes, which point of articulation, which organ of articulation and which mode of which?"'

6. *tatra sthānam tāvat.*

'Next the point(s) of articulation alone.'

7. *akuhavisarjanlyāḥ kānthyāḥ.*

'Throat-(phonemes) are ^(ā) a, the k-row, h, and h.'

8. *havisarjanīyāḥ urasyāv ekesām.*

'h and h are in the chest, the a, ā according to some.'

9. *jihvāmūlīyo jihvyāḥ.*

'Tongue-(phoneme) is the h.'

10. *kavargavarnānusvārajihvāmūlīyā jihvyā ekesām.*

'According to some, belonging to the tongue are the phonemes of the k-row, the m and the h.'

11. *sarvamukhasthānam avarnam eke.*

'Some hold that the phoneme a has the whole mouth as its point of articulation.'

12. *icuyaśās tālavyāḥ.*

'Palatal are ⁽ⁱ⁾ I, the phonemes of the c-row, y and s.'

13. *rturasā mūrdhanyāḥ.*

'Cacuminal are ^(r) r, the t-row, r and s.'

14. *ro dantamūlasthānam ekesām.*

'Some hold that the r has a point of articulation at the base of the teeth.'

15. *ltulasā dantyāḥ.*

'Dental are ^(l) l, the t-row and s.'

16. *vakārah dantosthyāḥ.*

'Dentilabial is the v.'

17. srkvasthānam eke.

‘Some hold that its point of articulation are the corners of the mouth.’

18. upūpadhmāṇīyā osthyāḥ.

‘Labial are u, the p-row, and h.’

19. anuśvārayamā nāsikyāḥ.

‘Nasal are m and the transition sounds.’

20. kanthanāsikyam anuśvāram eke.

‘Some hold that m is a throat-nasal phoneme.’

21. yamāś ca nāsikyajihvāmūlīyā ekesām.

‘And according to others, the transition sounds are both nasal and at the base of the tongue.’

22. odāutāu kanthoṣthyāu.

‘The o and ēu are throat-lip phonemes.’

23. edāitāu kanthatālavāyāu.

‘The e and ēi are throat-palate phonemes.’

24. ñamañanānā svasthānā nāsikasthānāś ca.

‘The ñ, m, ñ, n and n have their own point of articulation, as well as the nose.’

25. dvivarnāni samdhyakṣarāni.

‘Diphthongs are composed of two phonemes.’

26. sarepha rvarnah.

‘The phoneme (ṛ) is accompanied by a snarl.’

27. evam etāni sthānāni.

‘Thus are these points of articulation.’

II. [Organs of articulation].

1. *karanam* *api*.

'And the organ of articulation.'

2. *jihvātālavayamūrdhanyadantyānām* *jihvā* *karanam*.

'The organ of articulation of the tongue, palatal, cacuminal and dental phonemes, is the tongue.'

3. *katham* *iti*.

'In what way?'

4. *jihvāmulena* *jihvāyānām*.

'With the root of the tongue, (it is the organ of articulation) of the tongue-phonemes.'

5. *jihvāmadhyena* *tālavayānām*.

'With the central part of the tongue, of the palatal phonemes.'

6. *jihvopagrena* *mūrdhanyānām*.

'With almost the tip of the tongue, of the cacuminal phonemes.'

7. *jihvāgrādhah* *karanam* *vā*.

'Optionally, the organ of articulation is the underside of the tip of the tongue.'

8. *jihvāgreṇa* *dantyānām*.

'With the tip of the tongue, of the dental phonemes.'

9. *śeṣāḥ* *svasthānakaranāḥ*.

'The remainder have as organ of articulation their own point of articulation.'

10. *ity etat karanam*.

'So much for the organ of articulation.'

III. [Intrabuccal process].

1. prayatno dvividhah.

'Articulatory process is of two kinds.'

2. ābhyantaro bāhyaś ca.

'Internal and external.'

3. ābhyantaras tāvat.

'The internal articulatory process first.'

4. spr̥stakaranāḥ sparśāḥ.

'Contact-phonemes are those whose articulatory organ is touched.'

5. Isatspr̥stakaranā antasthāḥ.

'Semivowels ("in between") are those phonemes whose articulatory organ is touched lightly.'

6. Isadvivṛtakaranā ūsmānah.

'Spirants have slightly opened articulatory organs.'

7. vivṛtakaranāḥ svarāḥ.

'Vowels have their organs of articulation open.'

8. tebhyā eo vivṛttatarāu, 9. tabhyam āi āu, 10. tābhyām api ākārah.

'More open than these are e and o, more open than the latter two are āi and āu, even more open than these two is ā.'

11. samvr̥to 'kārah.

'The a is closed.'

IV. [Extra-buccal process].

1. atha bāhyāḥ.

'Now follow (the phonemes articulated with) external effort.'

2. vargānāṁ prathamadvitīyāḥ śasasavisarjanīyajihvāmūlīyopadhmāniyā yamāu ca prathamadvitīyāu vivṛtakānṭhāḥ śvāsanupradānā aghosāḥ.

'The first and second of the columns, as well as ś, s, s, h, h, h, and the transition sounds belonging to the first and second columns are pronounced with (lit. 'have') the throat opened (and) are voiceless with whisper as a secondary feature.'

3. vargayaṁānāṁ prathame 'lpaprānā itare sarve mahāprānāḥ.

'Of the column-phonemes and transition sounds, the first ones have little aspiration, the others have all aspiration (lit. 'great breath').'

4. vargānāṁ trīyacaturthā antasthāḥ hakārānusvārāu yamāu ca trīyacaturthāu samvṛtakānṭhā nādānupradānā ghoṣavantah.

'The third and fourth columns, the semivowels, h and m and the transition sounds belonging to the third and fourth columns, (are pronounced with (lit. 'have') the throat constricted (and) are voiced with tone (lit. 'noise') as a secondary feature.'

5. vargayaṁānāṁ trīyā antasthāś ca 'lpaprānā itare sarve mahāprānāḥ.

'Of the column-phonemes and the transition sounds, the third (column) and the semivowels are lightly aspirated, all others are aspirated.'

6. yathā trīyāś tathā pañcamāḥ.

'The phonemes of the fifth column are like the thirds.'

7. ānunāsikyam esām adhiko gunah.

'They have an additional feature, nasality.'

8. śādaya ūṣmanah.

'The spirants are ś and the ones following it.'

9. sasthānena dvitīyāḥ.

'The phonemes of column two are with the same points of articulation.'

10. hakārena caturthāḥ.

'The phonemes of the fourth class are (homophonic?) with h.'

11. esa bāhyah prayatnah.

'This is the external mode.'

V. [Impact].

1. tatra sparśayamavarnakāro vāyur ayahpindavat sthānam abhipīdayati.

'There the air which produced stop-phonemes and transition sounds strikes the point of articulation like a ball of iron.'

2. antasthavarnakāro vāyur dārupindavat.

'The air which produces semivowel-phonemes strikes like a mass of wood.'

3. ūśmasvaravarnakāro vāyur ūrnapindavat.

'The air which produces spirant and vowel phonemes, like a mass of wool.'

VI. [Homophony].

1. evam vyākhyāne vṛttikārāḥ pathanti: astādaśaprabhedam avarnakulam iti.

'The commentators read in their exposition as follows: the group of phonemes a has eighteen varieties.'

2. atra:

hrasvadīrghaplutatvāc ca traīsvaryopanayena ca anunāsikabhedāc ca samkhyāte 'stādaśātmakah, iti.

'In this matter:

Because of shortness, length and extra length, and the employment of three accents, and because of the distinction of nasals, the number is counted as eighteen.'

3. evam ivarnādayah.

'Thus are the phonemes beginning with i.'

4. ivarnasya dīrghā na santi.

'The phoneme i has no long ones.'

5. tam dvādaśaprabhedam ācakṣate.

'They list it as having twelve varieties.'

6. yadrcchāśaktijānukaranā vā yadā syur dīrghās, tadā tam apy astādaśaprabhedam bruvate.

'When the long ones are produced intentionally, or in imitation, then they say that i also has eighteen varieties.'

7. samdhyaksarānām hrasvā na santi.

'The diphthongs have no short (varieties).'

8. tāny api dvādaśaprabhedāni.

'They also have twelve varieties.'

9. chandogānām sātyamugrirānāyanīyānām hrasvāni pathanti.

'(Those of the schools) of Chandogas, Sātyamugris and Rānāyanīyas recite the short ones.'

10. *tesām* apy *astādaśprabhedāni*.

'And they have an eighteen-fold distinction.'

11. *antasthā dviprabheda* *rephavarjitāḥ*, 12. *sānumāsikā niranunāsikā ca*.

'The semivowels except r have two varieties, with nasalization and without nasalization.'

13. *rephosmanām savarnā na santi*.

'r and the spirants have no homophones.'

14. *vargyo vargyena savarnah*.

'A phoneme in one row is homophonic with a phoneme in the same row.'

VII. [Definitions].

1. *esa kramo varnānām*.

'This is the arrangement of phonemes.'

2. *tatrāi 'sam sthānakaranaprayathnānām vyakaranaprasid-dhir ucyate*.

'In that connection, the accomplishment of grammar is said to be of their place, organs and manners of articulation.'

3. *iha yatra sthāne varnā upalabhyante tat sthānam, 4. yena nivartyante tat karanam, 5. prayatanam prayat-nah*.

'Here the place in which the phonemes are perceived, that is the point of articulation; that by which they are brought about is the organ. The effort is the mode of articulation.'

VIII. [The articulatory process].

1. *tatra nābhipradeśet prayetna preritah prāno nāma vāyur ūrdhvam ākramann urahprabhṛtiūm sthānānām anyata-mesmin prayatnena vidhāryate*.

19. mahāprānatvād ūmatvam.

'From strong aspiration comes spirantization.'

20. yadā sarvāṅgānusārī prayatnas tīvra bhavati tadā gātrasya nigrāhah kanthabilasya ca 'nūtvam svarasya ca vāyos tīvragatitvād rāuksyam bhavati. tam udāttam ācaksate.

'When the articulatory effort proper to every limb-sharp then there is constriction of the organ (gātra-) and thinness of the glottal aperture and because of the sharp passage of the air stream, there is harshness of the vowel. This they call acute accent.'

21. yadā tu mandah prayatno bhavati tadā gātrasya aramsanam kanthabilasya mahatvam svarasya ca vāyor mandagatitvāt snigdhatā bhavati. tam anūdattam ācaksate.

'But when the articulatory effort is slight, then there is relaxation of the organ, enlargement of the glottal aperture, and because of the easy passage of the air stream, there is smoothness. This they call the grave accent.'

22. udāttānudāttasvaritasamnipātāt svaritah.

'The circumflex accent arises from a mixture of an acute and a grave accent.'

23. ity evam prayatno 'bhinirvrttah kṛtsnah prayatno bha-vati.

'The effort thus brought about is the entire articulatory effort.'

24. astāu sthānāni varnānām urāh kanthah śiras tathā jihvāmūlam ca dantās ca nāsikosthāu ca tālu ca sprāsatvam īsatsprāsatvam samvrtatvam tathāi 'va ca vivrtatvam ca varnānām antahkarānam ucyate kālo vivārasamvārāu śvāsanādāv aghosatā ghoso 'lpaprānatā cāi 'va mahāprānah svarās trayeh bāhyam kārānam āhus tān varnānām varnavedināh.
ity āpīśaliśikā samāptā.

"The eight points of articulation of phonemes are: chest, throat, likewise the head, the root of the tongue, the teeth, the nose, the lips and the palate. Contact, slight contact and likewise closedness and openness are called the interior articulation of the phonemes; duration, aperture and closure, breath and tone, voicelessness, voice and slight aspiration, aspiration, the three accents - those are called exterior articulation of phonemes by those who know the phonemes.

Here ends the Āpiśaliśikṣā.'

'There, ascending from the region of the navel, impelled by an effort, air, named breath, rising upward is arrested in one or the other of the points of articulation by the articulatory effort.'

2. dhvanāv utpadyamāne yadā sthānakaranaprayatnāḥ paraparam sprānti sā spratā.

'When during the production of sound, the point of articulation, the organ of articulation and the articulatory effort come into mutual contact, that is "contact, occlusion".'

3. yade 'sat sprānti tade 'satspratā, 4. dūrena yadā sprānti sa vivartā, 5. sāmipyena yadā sprānti sā samvrtatā.

'When they touch lightly, then there is semivocality, when they come in remote contact, there is openness, when they come in close contact, there is closure.'

6. ity eso 'ntah prayatnah.

'This describes the internal effort.'

7. sa idānīm prāno nāma vāyur ūrdhvam ākraman mūrdhni pratihato nivrtto yadā kostham abhihanti tada kosthe 'bhihanyamāne galabilasya samvrtatvāt samvāro jāyate vivrtatvād vivārah.

'Now this air named breath, proceeding upward, striking against the roof of the mouth, returns; when it strikes against the thoracic cavity (?), then if the throat-opening is closed, while the thoracic cavity is being struck, then there is "closure", if it is open, there is "aperture".'

8. tāu samvāravivārāu.

'So much for closure and aperture.'

9. tatra yadā kanthabilam saṁvrtam bhavati tadā nādo jāyate.

'In that connection, when the throat opening is closed, then tone is produced.'

10. vivr̥te tu kanthabile śvāso jāyate.

'But when the throat opening is opened, whisper is produced.'

11. tāu śvāsanādāu.

'So much for whisper and tone.'

12. anupradānam iti ścaksate. anye tu bruvate anupradānam anusvāno ghantānirhrādavat.

'Some call it a secondary feature. Others, however, say that it is a secondary feature because it resonates, like the ringing of a bell.'

13. tatra yadā sthānābhīghātāje dhvanāu nādo 'nupradīyate tadā nādadhvanisamsargād ghoso jāyate.

'In that connection, when resonance (dhvani-) results from the impact on the point of articulation and as a secondary feature tone is produced, then from the combination of tone and resonance voice is produced.'

14. yadā śvāso 'nupradīyate tadā śvāsadhvaniśamsargād aghosah.

15. sā ghosavadaghosatā.

'When breath is the secondary feature, then from the combination of breath and resonance voicelessness is produced. So much for voicedness and unvoicedness.'

16. mahati vāyāu mahāprānah. 17. alpe vāyāv alpaprānah.

18. sā 'lpaprānamahāprānatā.

'When air flow is strong, there is strong aspiration, when the air flow is weak there is little aspiration. So much for weak and strong aspiration.'

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